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AUTHOR Mardon, Austin Albert
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ABSTRACT

Efforts to develop geographic literacy, specifically "place-name" knowledge, need to be based in an understanding of cognitive psychological principles. This paper argues that developing knowledge of place-names, including memorization of such names, is important if students are to achieve geographic literacy. A cognitive psychology model of how memory functions in terms of place-name knowledge is presented. (DB)

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Teaching Place-Names withiin the Cognitive Psychology Model

by

Austin Albert Mardon

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Teaching Place-Names within the Cognitive Psychology Model.

By: Austin Albert Mardon.

Introduction.

The present day educational crisis in much Place-Name learning has fostered considerable interest in the level of school age place-name knowledge. This concern about geographic illiteracy has resulted in the formation of the GENIP coalition. The concern has even reached the United States Senate and has resulted in the proclaimation of a "Geography Awareness Week." The concern is based on a continuing low level of students, at all educational levels, of geographic place-name knowledge. While many researchers have tested and retested students all academic levels for place-name knowledge they have done this without any reference to cognitive psychology models. This can be seen in the articles within The Journal of Geography the official publication of the *National Council for Geographic Education*. What this means is that testing systems are unrelated to the mental processes occuring.

Also efforts to improve student retention rates of place-names is impotent because it has no reference to human information processing and retention systems. It is logical to believe that testing and teaching techniques would gain relevance if they are based firmly in contemporary cognitive pyschology models. We will discuss in broad terms why one should study place-names.

Why should one study place-names.

The author's conjecture is that place-name knowledge is within a lexiconical/declarative and spatial network. This network of information storage overlaps and facilitates recall of specific information by lateral reinforcement between differring information storage systems. What an extensive knowledge of place-names can do in a cognitive pyschology framework is to allow an extensive tieing in of differing chunks through a locational framework. In addition it allows the individual to have a broad framework from which to develop concepts and schemas. It is obvious in a world with ever increasing complex problems related to location that

mechanisms to increase effectiveness of teaching place should be looked at. Societies that are committed to a democratic system of government must insure that constituants must know basic locations of geographic entities. The extensive continuing evidence that is coming out concerning the decline of *geographic-literacy* in the United States could fill volumes of treatises. When they talk of geographic-literacy they are talking about an extensive knowledge of place-names that are lacking but at the present time the only testing that occurs is entirely based on analogue memory in addition most of the teaching also relies on anologue memory. I would define it as a place-name vocabulary. This vocabulary is like the vocabulary of any language or area of study. Just as with any language, the language of place has a vocabulary of place-names. Unless one knows the vocabulary one has distinct difficulty speaking the language. While many pedogical techniques decry the use of memorization, unless certain benchmarks of place-name knowledge are reached subsequent more qualitative lessons might lose their meaning. One could describe place-name

learning in the terms that the knowledge has nothing to hang its hat on have nothing to hang their hats on. Even on the objective level, one can't question the logic that Africa/ Europe/Asia/ South America should be located by a sizable majority of an educated student populace.

An adequate knowledge of Place Names can be viewed as a type of basic literacy of the same importance to any democratic Society as a basic reading literacy. Within the conceptual model of Cognitive psychology information storage within the human intellectual system is viewed from a systems approach. At the present time this relatively new psychological perspective has not yet dealt with the distinctions of how Place-name learning occurs under this model. It is my opinion that their are a variety of mechanisms and knowledge aquisition procedures that are occuring while the student 'learns' a place-name. The first that should be noted is that there are two separate types of information storage occuring. The first one is declarative and the second one is anologue. This has great implications on exactly what is occurring when we say that a

student knows where a location name is. In declaritive knowledge, information is stored in a manner similiar to a network of connected data. In this type of storage system the NAME is recorded in such a manner as outlined below;

AFRICA-SOUTH-BLACK PEOPLE-SAHARA.

It is stored in a interconnected tree of BITS of information.

This non-spatial knowledge of the location as place many more persons might know that Africa is to the South and a series of activated chunks of related knowledge. This type of place-name knowledge is more ameniable to long term storage in the memory.

The second type of storage of place-names would be the more conventinal spatial location of locations within a mental anologue framework. This storage is in terms of 'picture' type of storage within the mindin a non-linear fashion. It also according to the liteature does not store as well as declaative or procedural knowledge. The most important thing is elaboration of different types of knowledge.

Now having discussed the necessity for a general knowledge

of place-names in education. We will now discuss how place-names are stored in memory as explained by an information processing model.

The two types of Place-Name Storage in an information processing system.

When someone remembers a place-name, how is this stored in the brain? It is commonly refered to under a cognitive psychology model as being stored in a spatial analogue manner but in addition to this the information is stored in what is called declarative memory. The three types of stored memory are;

1. Declarative Networks: this is a series of separate word/concepts linked together.

2. Prepositional Networks: could be seen as similar to a linear *if.....then* computer program.

3. Anologue: this is the storage of images in a graphic form.

(Taken from Gagne, Robert. The Cognitive Psychology of School Learning. 1985)

Each of these storage systems has different featuresin the working memory[WM] and in the long term memory[long term memory]. Analogue can function well in short term memory in large volumes but it does not storein long term memory with as much integrity. On the other hand, declarative memory can only be used in a very slow manner because working memory can only contain seven *chunks* of information, each *chunk* of declarative information is equivalent to one *chunk* of an entire image so that a large ammount of stored information can be recalled into working memory from anologue. But declarative information storage in long term memory is quite extraordinary in its ability to retain integrity. It is the author's opinion that two separate storage systems are at work when one describes place-name storage. This has not been described in the literature before. What has been described and emphasized before is the anologue storage system without any reference to storage of place-names in the other systems and the potential overlap in learning that might mean that effective teaching techniques might involve a combination of teaching techniques that allow

overlap of material covered. If, in addition to the analogue storage, the place-names are stored in declarative memory in a lexiconical manner, then the characteristics of optimal storage will be different then for a system. The next section will cover some specific discoveries from within cognitive psychology.

Specific place-name teaching techniques that arise out of Cognitive Psychology.

While a teacher is going over place-names, the teacher should have each of the students activly trace the location of the place name being taught while the teacher also traces the location of the place on a map, at the front of the room. The reason for this is that the hand action of tracing the location of the place location allows a more appropriate storage of the location of the map the student must in some way actually move their hands and pencils to the location of the place name and be told that this is where this specific place name is. While this area of psychology is still very new and experimental, it could be useful to at least investigate the possibility that

psycho-motor elements do affect the learning rates of place names. In conjunction with the above described process of tieing in with existing knowledge and making reference to elements that combine with declarative memory this insight into how place-names are stored might have some use for members of the American Name Society.

Conclusion.

The author hopes that he has outlined the major implications for place-name enthuisiasts of new paradigms in psychology. It is also clear that unless present educational efforts on behalf of increasing the United States of America's student place name literacy are well founded in psychology this contemporary endeavor will fall like the mustard seed, falling on barren ground.

Austin Mardon.